

## CLAIMS

1. A method of forwarding packets in a communication system having multiple ports, said method comprising:

5 providing said system with multiple forwarding tables;

receiving said packets at one of said ports;

selecting an appropriate forwarding table based on a source address in said packets; and

10 forwarding said packets to one of said ports based on a destination address in said packets and information in said appropriate forwarding table.

2. The method as defined in claim 1 wherein said packets are received at said ports by service interfaces which define realms each relating to a specific instance of an internetworking service function.

3. A method as defined in claim 2 wherein said specific instance is a public Internet access service.

4. A method as defined in claim 2 wherein said specific instance is a virtual private network (VPN) service.

25        5. A method as defined in claim 4 wherein said VPN  
service is a bridged and/or routed connectivity service.

6. A method as defined in claim 4 wherein said VPN service is a network layer connectivity service:

7. A method as defined in claim 1 wherein said internetworking devices include an ATM backplane.

8. A packet forwarder for a communication system comprising:

a plurality of ports;

multiple service interfaces providing input to said  
5 ports, said service interfaces including source and destination addresses;

multiple forwarding tables defining isolated realms to which said service interfaces belong based on said source information; and

10 forwarding means to direct said service interfaces to an appropriate port based on the destination address and information in said forwarding table.

9. A packet forwarder as defined in claim 8 wherein  
15 said plurality of ports include ingress ports and egress ports.

10. A packet forwarder as defined in claim 8 wherein  
said isolated realms are assigned to specific network users.

20 11. A packet forwarder as defined in claim 8 service interfaces relate to physical and logical connections.

12. A packet forwarder as defined in claim 11 wherein  
25 said logical connections include multiple traffic flows from one or more ingress ports.

13. A packet forwarder as defined in claim 8 wherein  
said isolated realms relate to a specific instance of an  
30 internetworking service function.

14. A system as defined in claim 13 wherein said  
internetworking service function is a Public Internet access service.

15. A system as defined in claim 13 wherein said internetworking service function is a virtual private network (VPN) service.

5 16. A system as defined in claim 15 wherein said VPN service is a bridged and/or routed connectivity service.

10 17. A system as defined in claim 16 wherein said internetworking service functions are provided over an ATM network.

18. A system as defined 16 wherein said internetworking devices support multiple protocols.

15 19. A system as defined in claim 18 wherein said internetworking devices provide services at both the packet and frame levels.

20 20. A system as defined in claim 19 wherein said internetworking services are managed by a single service provider.

25 21. A system as defined in claim 19 wherein said multiple protocol over ATM (MPOA) service includes a MPOA client lookup cache management function.

22. A system as defined in claim 8 wherein one of said internetworking devices is an internetworking services card for providing routed and bridged forwarding services.